

## **APPENDIX M**

### **OIL**

## **DEPARTMENT OF ENVIRONMENTAL PROTECTION**

### **CHAPTER 378: PERFORMANCE STANDARDS FOR THE STORAGE OF PETROLEUM PRODUCTS**

Summary: This excerpt from the chapter describes the the performance and design standards for the onsite storage of petroleum products in excavation sites and spill prevention, control, and countermeasures plans.

**5. Performance and design standards for the storage of petroleum products.** The owner or operator of an excavation site or rock quarry where petroleum products will be stored must submit a spill prevention control and countermeasures plan to the Department for review at least 45 days before beginning operation. The plan must detail the specific measures for secondary containment, spill prevention control and countermeasures, equipment maintenance, inspections, and staff training. The following standards address the storage of petroleum products at excavation sites and rock quarries.

#### **A. Performance standards for secondary containment**

- (1) Secondary containment is required for all fixed storage of petroleum products. The volume of the storage capacity of the secondary containment structure must be at least 110% of the volume of the largest tank within that secondary structure, after allowing for the volume of tanks, footings and other solid objects within the containment structure.
- (2) If onsite refueling is necessary for fixed equipment, such as crushers, concrete batch facilities, and hot mix asphalt facilities, a specific refueling area must be designated, and located on impermeable material such as synthetic liners, clay or till.
- (3) A minimum five-foot separation distance must be maintained between the lowest point of the containment structure (including sumps and drains) and the seasonal high water table.
- (4) The filler tube for the fuel storage tank must be within the secondary containment structure or within a structure which drains to the secondary containment. Storage tanks must be equipped with direct-reading gauges and have a venting capacity suitable for the filling and withdrawal rates.
- (5) If piping or hoses containing petroleum products or other potential contaminants cross areas likely to receive traffic, they must be contained within a pipe of at least the integrity of schedule 40 PVC or a metal sleeve. These lines may be elevated; this elevation must be clearly posted on the structure suspending the lines.
- (6) The use of fuel, gasoline, or kerosene to prevent the adhesion of asphalt to truck beds is prohibited.
- (7) Provisions must be made for the removal of precipitation from the containment structure, unless the containment area is enclosed within a structure or completely covered by a roof. Removal of accumulated water from a containment structure requires a visual evaluation of the water quality in the sump or low area of the structure. Any water exhibiting a sheen, or containing tarry or greasy lumps or sludge, may not be discharged onto the ground or into a surface water body until the contamination is removed, and no further evidence of contamination is present.
- (8) The Department may as a condition of operation require the owner or operator to install monitoring wells in the vicinity of onsite petroleum product storage. If monitoring wells are required by the Department, groundwater must be monitored for gasoline-range organics(gro) and diesel-range organics (dro).

#### **B. Design standards for concrete dikes**

- (1) These structures must have concrete walls and floors.

- (2) Minimum dike sizes are based on the volume of the largest tank, plus approximately 12 inches of additional dike wall height as freeboard for rain and excess fluid collection. In no case may the volume of the containment structure be less than 110% of the largest tank within it, after allowing for the volume of the tanks, footings and other objects within the containment structure.
- (3) All seams and joints must be caulked, including pipe penetrations. No piping or conduits may penetrate the dike floor or the wall below the height necessary to contain 110% of the volume of stored product.
- (4) Enclosures above the dike that are supported on top of the dike wall must be braced frame structures, unless the dike walls are designed to support lateral loads.
- (5) A low-point sump is required for removal of rain or spilled liquid. A permanently mounted hand pump is suggested for liquid removal.
- (6) Access and exit ramps may be cast as part of the containment structure.

#### **C. Design standards for containment berms**

- (1) The floor of the fuel storage area and the berm must be constructed of low permeability earthen materials with a maximum permeability of  $5 \times 10^{-7}$  cm/sec, such as fine-grained till or clay.
- (2) The earthen material must be free of any stones greater than two inches in diameter, and other deleterious material such as roots and other debris.
- (3) The floor of the storage area must have a minimum thickness of six inches, and must be compacted to 95 percent standard proctor. If a thickness of greater than six inches is placed, the material must be placed in six-inch lifts, and each lift compacted separately. Compaction of multiple lifts must be done with a sheepsfoot roller or the equivalent in order to assure bonding between the lifts.
- (4) The berm surrounding the area must be at least one foot in height, and constructed of similar low-permeability material, placed in six-inch lifts with each lift compacted to 95 percent standard proctor.
- (5) The compacted base and berm must then be covered with at least twelve inches of gravel in order to protect the impermeable layer from damage. The berm area must be protected by the use of vegetation or other structural measures to prevent damage from weather.
- (6) Concrete or asphalt ramps must be used for crossings of earth berms whenever possible. Access ramps may be located on uphill sides of the containment area, but must still crest along the axis of the berm and above grade to prevent runoff from entering the containment area. The access ramp must be clearly marked, and other access blocked, to prevent damage to the berm from repeated vehicle and foot traffic.
- (7) Containment areas with liners or compacted earthen floors must have these surfaces protected from the effects of vehicle passage. In areas subject to vehicular or foot traffic, a minimum of one foot of coarse sand or fine gravel should be placed above the liner or earth floor. An appropriately specified geotextile must be placed above earth floors to prevent damage to the compacted liner.
- (8) Pipes through an earth liner must have an anti-seep collar installed around the pipe within the earth liner.

#### **D. Design standards for lined fuel storage areas**

- (1) Storage areas similar to those described above may be constructed with a synthetic liner. A minimum thickness of six inches of low-permeability material free of stones or other debris must be placed as a floor, and surrounded by a berm of similar material with a minimum height of one foot above grade.

- (2) A product-compatible synthetic liner with a 30-mil minimum thickness must be laid above this earthen structure, and covered with at least six inches of gravel in order to protect the liner. In areas subject to vehicular and foot traffic, at least twelve inches of coarse sand or fine gravel must be used.

#### **E. Equipment maintenance**

- (1) Under no circumstances may oil or other fluids be drained, topped off, or changed in the pit except when unavoidable due to the location of fixed equipment such as screeners, crushers, and asphalt plant. When draining oils or fluids from fixed equipment, precautionary measures such as portable drip pans or the use of vacuuming devices, must be taken to ensure that no spills occur.
- (2) No waste oil, lubricants, antifreeze, or other potential contaminants may be stored on the site unless they are stored securely within a maintenance garage or equivalent structure. These structures must have impermeable floors and may not have floor drains. The floor of any storage area must have a raised lip or sill in order to contain any product spilled onto the floor and to allow for easy and complete clean up.
- (3) No washing of equipment may occur in the pit or in any area where the wash water could contaminate groundwater or surface water.
- (4) In the event that a piece of equipment breaks down within the pit, the operator must tow the equipment out of the mining area rather than attempt to repair it in place. Exceptions: (A) extremely minor repairs such as replacing belts or wires; or (B) in the event that towing the disabled vehicle out of the active excavation would potentially result in a greater spill; or cause greater damage to the disabled piece of equipment; or (C) in the event that towing would create an unsafe condition. The operator must take precautionary measures to ensure that any potential leak of contaminants is contained and cleaned up immediately.

#### **F. Safety measures**

- (1) Fuel storage tanks require high level alarms to prevent overfill spills. Outlet valves and power switches for pumps must be locked securely when not in use.
- (2) A responsible person must be present at all times during a refueling operation and must remain at arms reach of the fuel-hose nozzle at all times.
- (3) Each refueling vehicle must be equipped with a shovel, an impermeable container with a volume of no less than 35 gallons and a tight fitting lid, and at least two absorbent pads or pillows. An absorbent pad or portable drip catch must be in place beneath the fill tube at all times during the refueling operation.

#### **G. Inspections, reports and training**

- (1) Fuel lines and oil bearing lines must be inspected on a weekly basis, with a record of the inspection kept in a logbook and signed by a responsible person.
- (2) Secondary containment structures must be inspected on a weekly basis to ensure the integrity of the containment structure. A record of the inspection must be kept in a logbook and signed by a responsible person. Key items in regular inspection of the containment structures must include the following: the presence of oily water in the containment area; soil or dike lining color changes; presence of hydrocarbon odors in the immediate area, visual observance of tanks, pumps, valves and pipe connections; and determination of accumulated liquids contained in the area.
- (3) Employees must be trained in conducting inspections of petroleum storage facilities for evidence of leaks and deterioration of equipment and structures which may lead to potential spills. Employees must be trained in spill containment procedures and clean-up procedures.

#### **H. Spill containment and clean-up**

- (1) All spills or leaks must be treated as emergencies and cleaned up immediately.

- (2) The operator must immediately notify the Maine DEP 24-hour oil spill hotline at 1-800-482-0777.
- (3) The first step in any attempt to minimize the damage due to a spill or leak is to stop the flow of the potential contaminant, if possible, by closing all valves, uprighting overturned containers, or raising hoses to prevent siphoning.
- (4) If the spill or leak cannot be stopped, containment measures, such as berms, must be constructed at once. If the magnitude of a spill is such that product is flowing across the ground, priority must be given to preventing the flow of the spill toward water bodies or drainage ditches, by methods such as placement of soil berms in advance of the spill, blocking culverts and drainage ditches with absorbent pads or pillows, covering drains and catch basins with rubber pads, and similar measures.
- (5) Typically minor spills are absorbed by the upper few inches of soil; this material should be dug up with shovels or power equipment and stored in or on impervious containers until properly disposed of. Acceptable containers include metal or plastic drums, back of a dump truck, or trash cans in good condition, with lids, or impermeable tarps with another tarp placed over the top of the contaminated material pile. All contaminated material storage piles must be covered to prevent precipitation onto the contaminated material.
- (6) There are several measures available for the disposal of contaminated soils, including use of the petroleum-contaminated soil in an asphalt plant. Under no circumstances, however, should any permanent disposal method be used without the approval of the Department of Environmental Protection Spill Response Unit. The temporary storage methods described above must be utilized until the approved method of final disposal can be implemented.

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